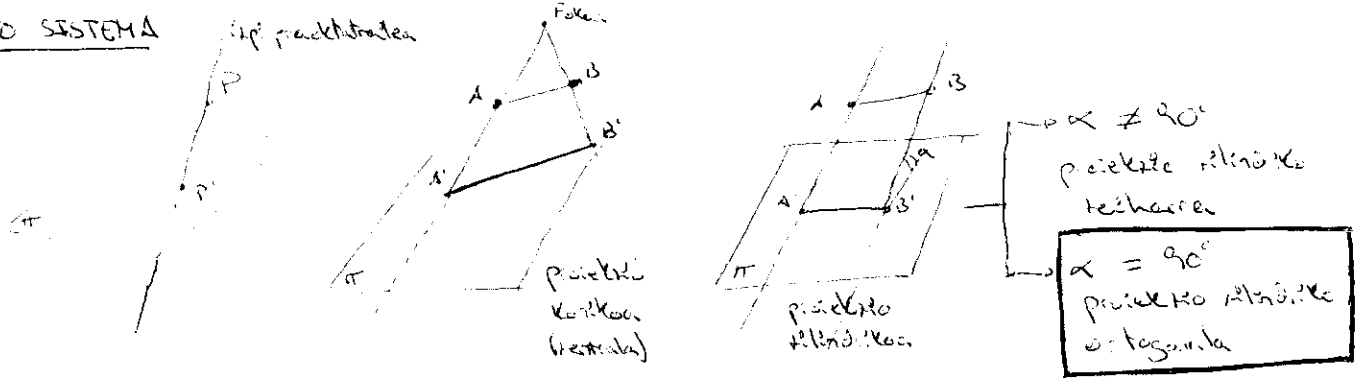


# Sisteme de proiectie

## PROIECTIO SISTEMATA



## REPREZENTARE SISTEMATA

Reprezentări sistematice (Buniciu, reprezentări...)

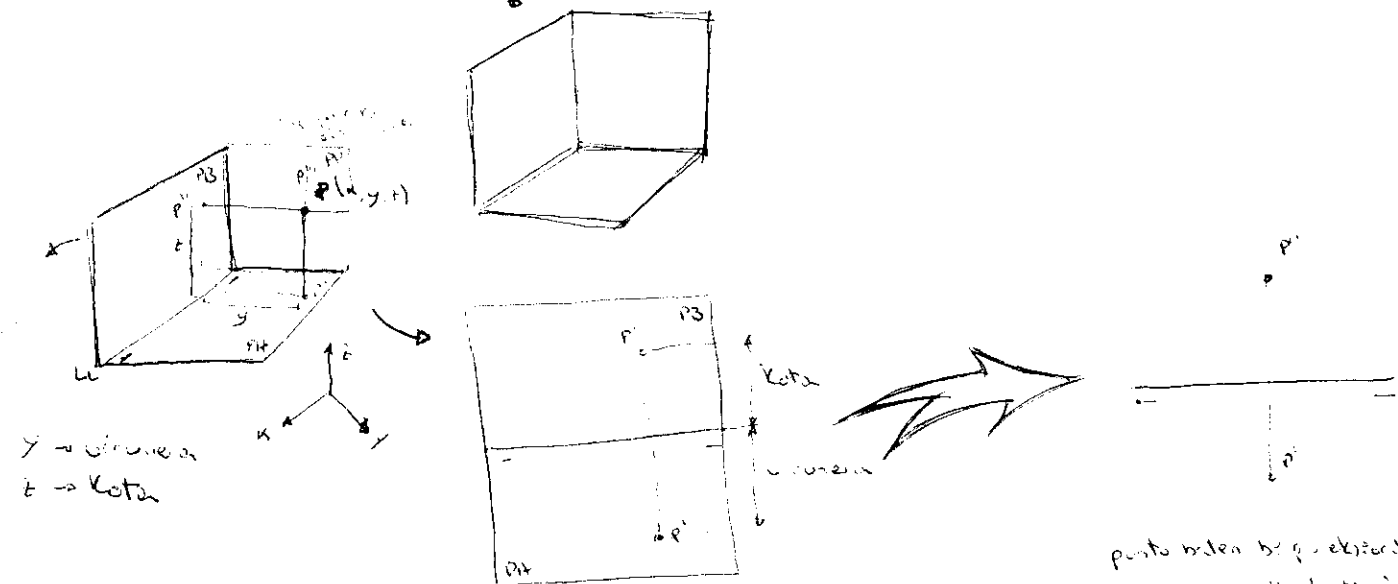
↳ Sisteme de proiectie

↳ Plane de proiectie

Sisteme de reprezentare

↳ Sisteme de coordonate

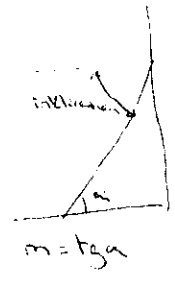
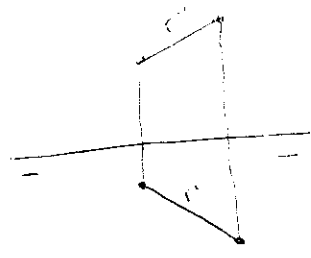
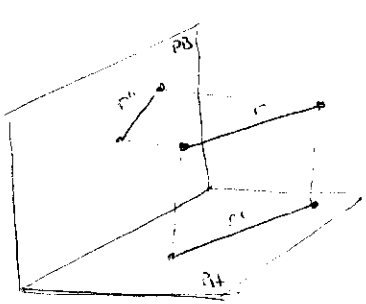
↳ Isometrie



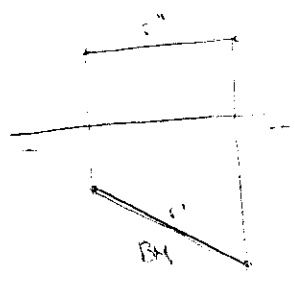
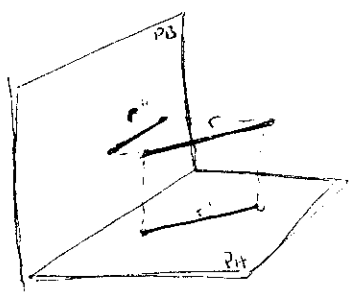
## NOMENCLATURA

	Expunere	Proiecție
Punct	A, B, C, D...	A', B', C', D'...
Linie	r, s, t...	r', s', t'...
Plan	α, β, γ, δ...	α', β', γ', δ'...

puncte sînt de proiectie în  
linii, cîlnă, cîlnă de cîlnă  
sînt cîlnă de cîlnă de cîlnă

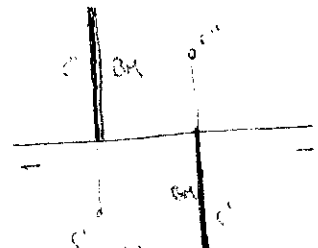
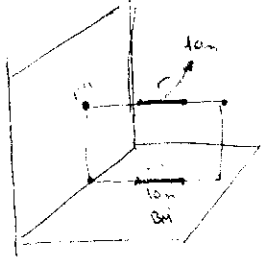


BREKHO TUTENAK



TUTEN  
HORIZONTAL

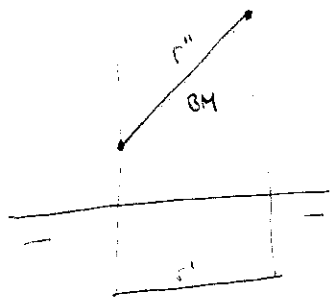
plano horizontalarekko paralela  
tunen go, projekto berikala  
horizontalarekko paralela ang an



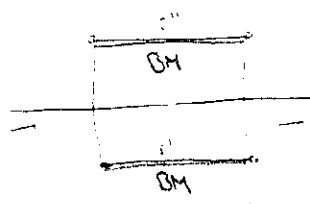
plano horizontalarekko  
elektrota  
plano horizontalarekko  
elektrota

PUNTAKO  
TUTEN A

tunen ber projekto plano berikala  
paralela ber, projekto berikala  
magistralen ugatoka an



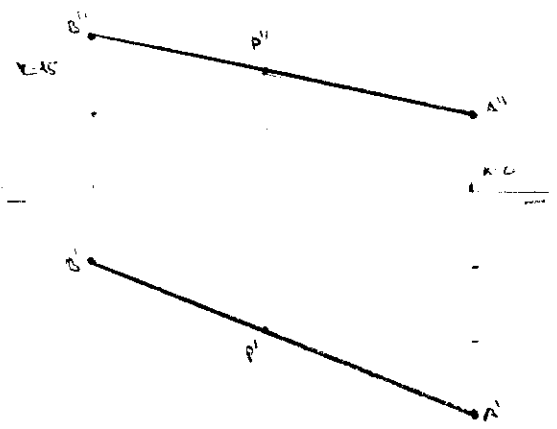
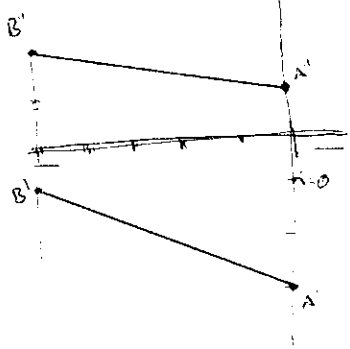
TUTEN  
FRONTALA



U-arekko paralela

Maatara A eta B paralelitate igariten den tutenak

- A (0, 30, 10)
- B (50, 10, 20)
- ↓ ↓ ↓
- 3 5 2
- 0 0



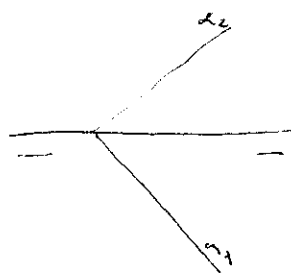
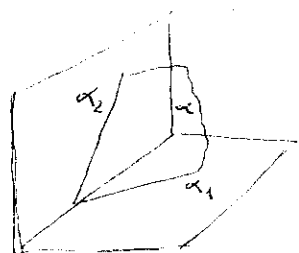
$$\begin{cases} A(20, 30, 10) \\ B(50, 20, 30) \end{cases}$$

- $K(30, y, z)$
- $L(K, 15, z)$
- $M(x, y, 20)$



To Be Answered by Det

-° Håv pouter bilder  
(lærstakk er borte)

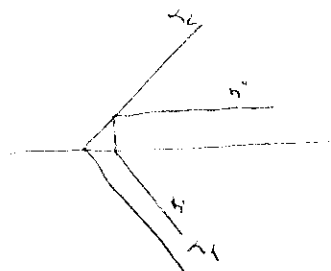


Wiederholungsfragen  
zum Buch

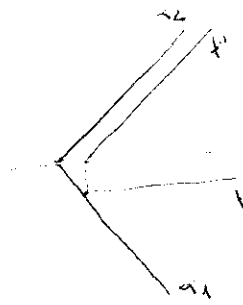
- Linien im plan horizontal ab horizontalen

<p>projekektatsiya (ekskursiya) nizkor-pale</p>	<p>projekektatsiya barkatlar</p>	<p>plano baxratik</p>	<p>plano barkatlar</p>	<p>bu-lar ushlar parallel</p>
<p>dimensiya baxratik barkatlar negizlar</p>	<p>dimensiya baxratik barkatlar negizlar</p>	<p>bi-dimensiya barkatlar negizlar barkatlar 2-dimensiya</p>	<p>bi-dimensiya barkatlar negizlar barkatlar 2-dimensiya</p>	<p>bi-dimensiya barkatlar negizlar barkatlar 2-dimensiya</p>

A 3D perspective diagram of a rectangular prism. A diagonal line segment is labeled  $x_2$  and a vertical line segment is labeled  $x_1$ .

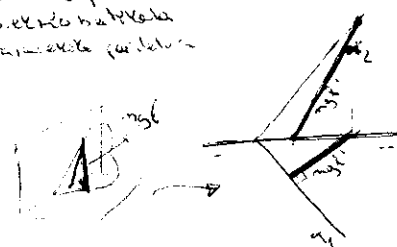


planete horizontala  
proiectia orbitalei este elipsa  
Realizati o schema  
horizontala a planetei  
Realizati

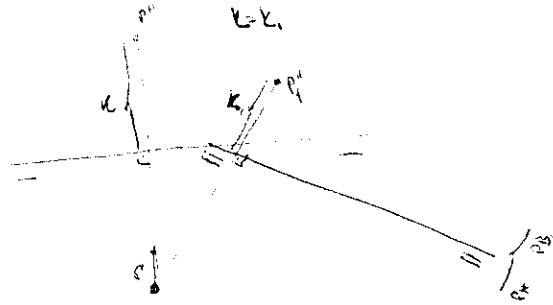


planeta frontală  
proiectie normală  
ulterior paralela  
proiectie normală  
transmisie similară

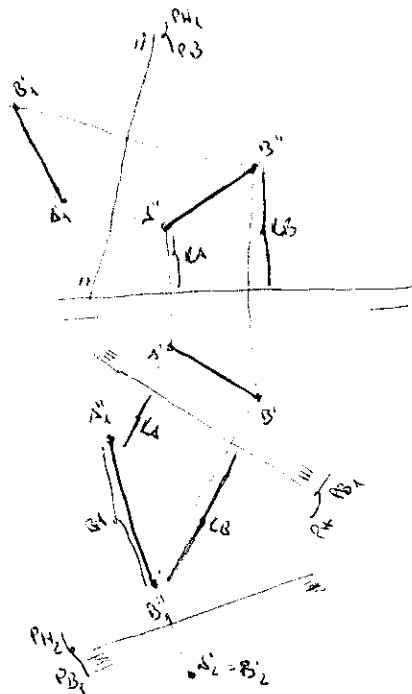
- Mada gurekiko lehen,  $\rightarrow$  planaren traza berberak direko elkarbata



- Projekti planaren aljabeta
- Bivarketak
- Ensiopent



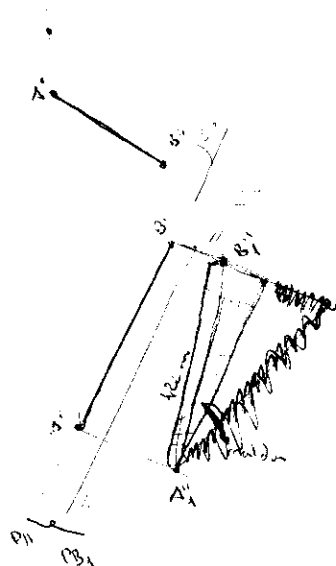
PROJECTIO PLANCKEN  
ALDARETA



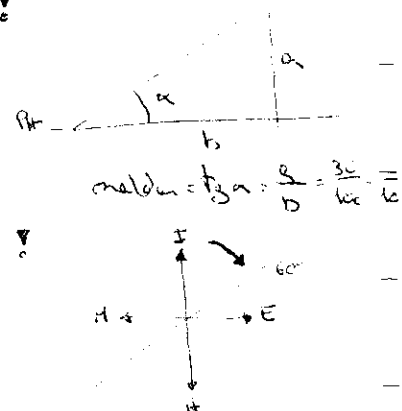
Zucker Kette

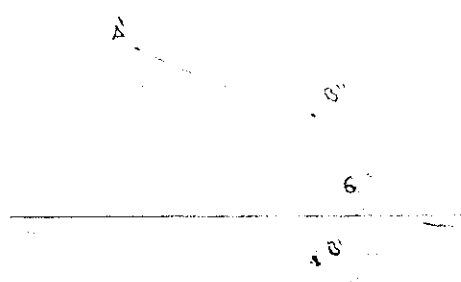
$\begin{cases} \rightarrow \text{PS}(\text{PS}_2) \rightarrow \text{Fruktose} \rightarrow \text{PS}(\text{PH}_2) \\ \downarrow \text{PS-reverse} \\ \text{PS}(\text{PH}_2) \rightarrow \text{Phosphorale} \\ \downarrow \\ \text{PS-reverse} \leftarrow \text{PS}(\text{PS}_2) \end{cases}$

$\overline{AB} = 120 \text{ m}$  (BM)  
 $I 60^\circ E \rightarrow$  (PM)  
 malda =  $36.30^\circ$   
 (P) (BM)  
 3-er Kette  
 2-er Kette  
 1-er Kette  
 0-er Kette

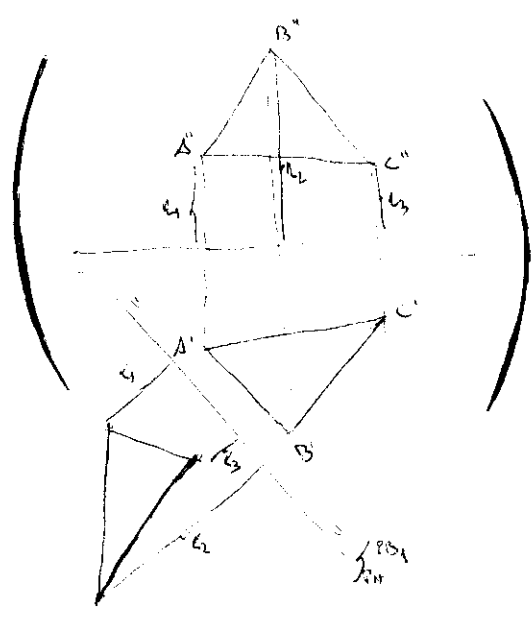
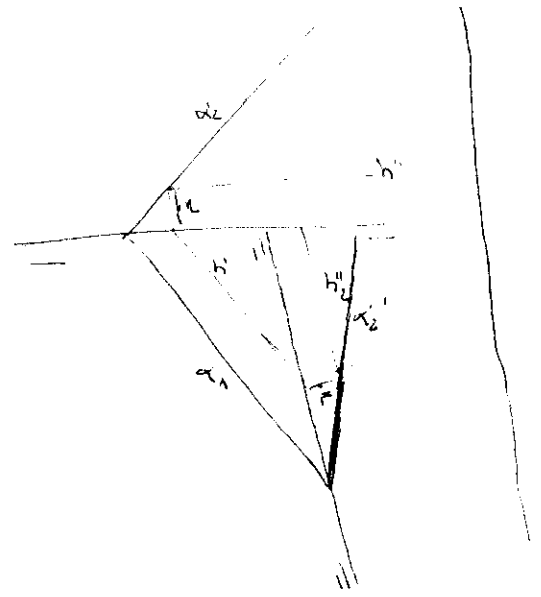
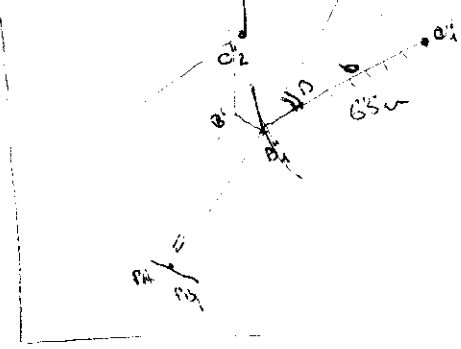
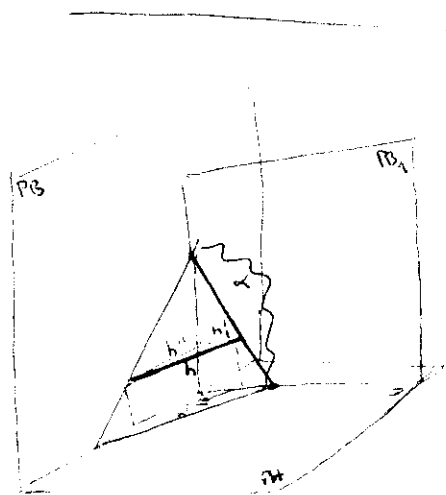
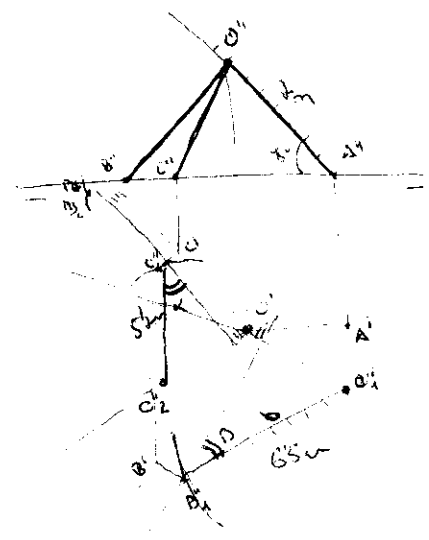
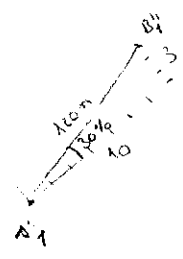
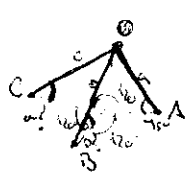


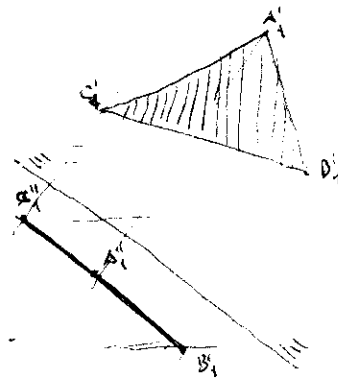
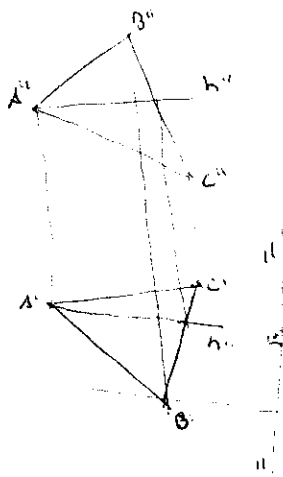
! Noch nicht plane herstellbar  
kürzer d.h. weniger bei  
projektio kann in die plane  
hänge das befehle





$a = 7m$   
 $b = 6.5m$   
 $c = 5.7m$





### Itensiti (leket)

Oguntu batetik, itas mitatek 120 m-ra dagoen bitx, itasatik bertan dagoen 60 m-ra eta 25°-ko angelu negatibokoa. Hori munita gero go, itasatik bertan dagoen bitx 45°-ko eta 15°-ko angelu negatibokoa.

Kalkulatu itasaren altuera eta erurtoa, konstanteak suposatuz.

### Koordenatu (leket)

ABCD karratuaren puntuak zuzenkatu nahi ditugu, L(40, 25) munita dagoen bitx, KL planaren dagoen bitx, baze bitxak X puntutik 25 munita dagoen bitx eta L puntutik baze bitx baze bitx. AB munita KL munita dagoen bitx. Daturak

$$X(-60, 55, 30)$$

$$L(-30, 80, 50)$$

$$K(-10, 40, 20)$$

### Egia eta Lehen (leket)

Hiru hots zuzenkatu (a, b, c) dituzte beraien karratuaren 5 munita dagoen bitx. 20 munita dagoen bitx dagoen bitx. a eta b hotsak beraien karratuaren bitx, c hotsak beraien karratuaren bitx. Daturak:

a Lehenen karratuaren A(60, 24, 18) puntutik dagoen bitx.

b Lehenen karratuaren B(60, 51, 1) puntutik dagoen bitx.

c Lehenen karratuaren C(60, 67, 35) eta D(35, 12, 1) puntutik dagoen bitx.

A eta B hotsak -k fraktal dagoen bitx, beraien karratuaren 30° (lehenen bitx) dagoen bitx.

### Plano bitx zuzenkatu dagoen bitx BM (leket)

ABCD eta ABCF planak zuzenkatu dagoen bitx baze bitx negatibokoa tope dagoen bitx. Daturak:

$$A(0, 10, 41)$$

$$E(-24, 10, 10)$$

$$B(-14, 55, 40)$$

$$F(55, 55, 10)$$

$$C(-14, 10, 10)$$

$$D(-26, 55, 10)$$

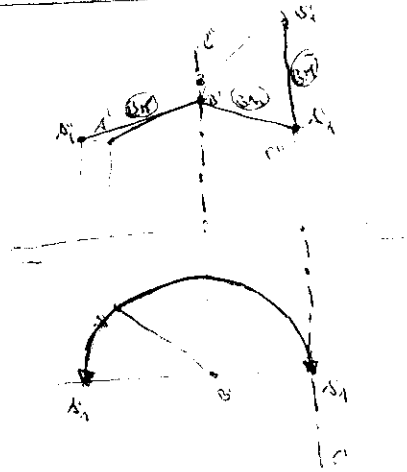
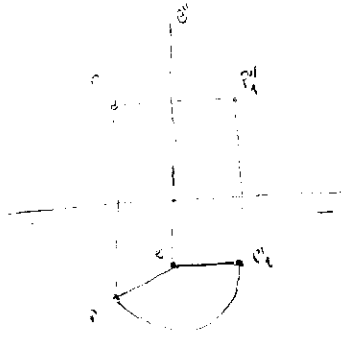
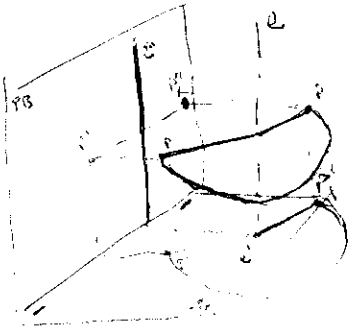
hüner bir etek angehören BY (aritekt) ✓

etaz hüner etek angehören binatek ney'lerden kellek enen, Dektate

r (0,20,15) (1,25,10,45)

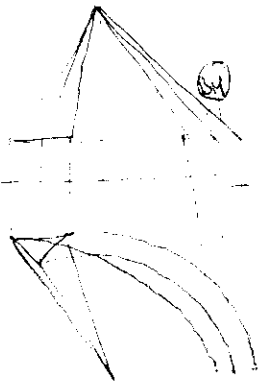
s (1,25,10,45) (50,30,25)

## BIRAKETAK

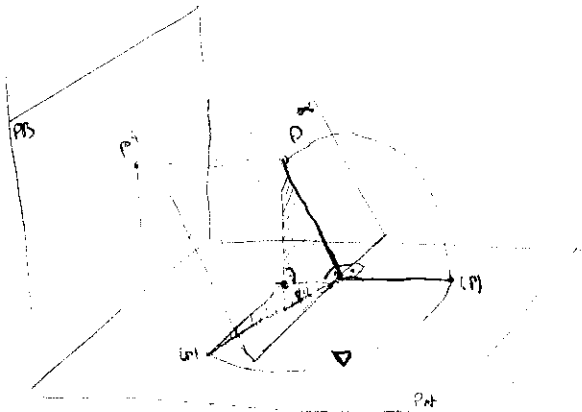


22 [ b-a → CH → n-a → PB L  
 PB L → CH → n-a → PB L  
 b-a → PF → b-a → PH L  
 PH L → PF → b-a → PH L

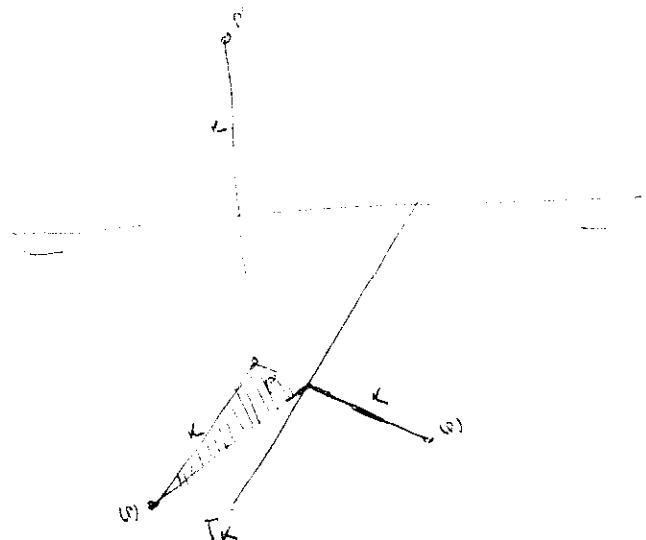
b-a → biraketak-avakta  
 h7 → h7er h7er

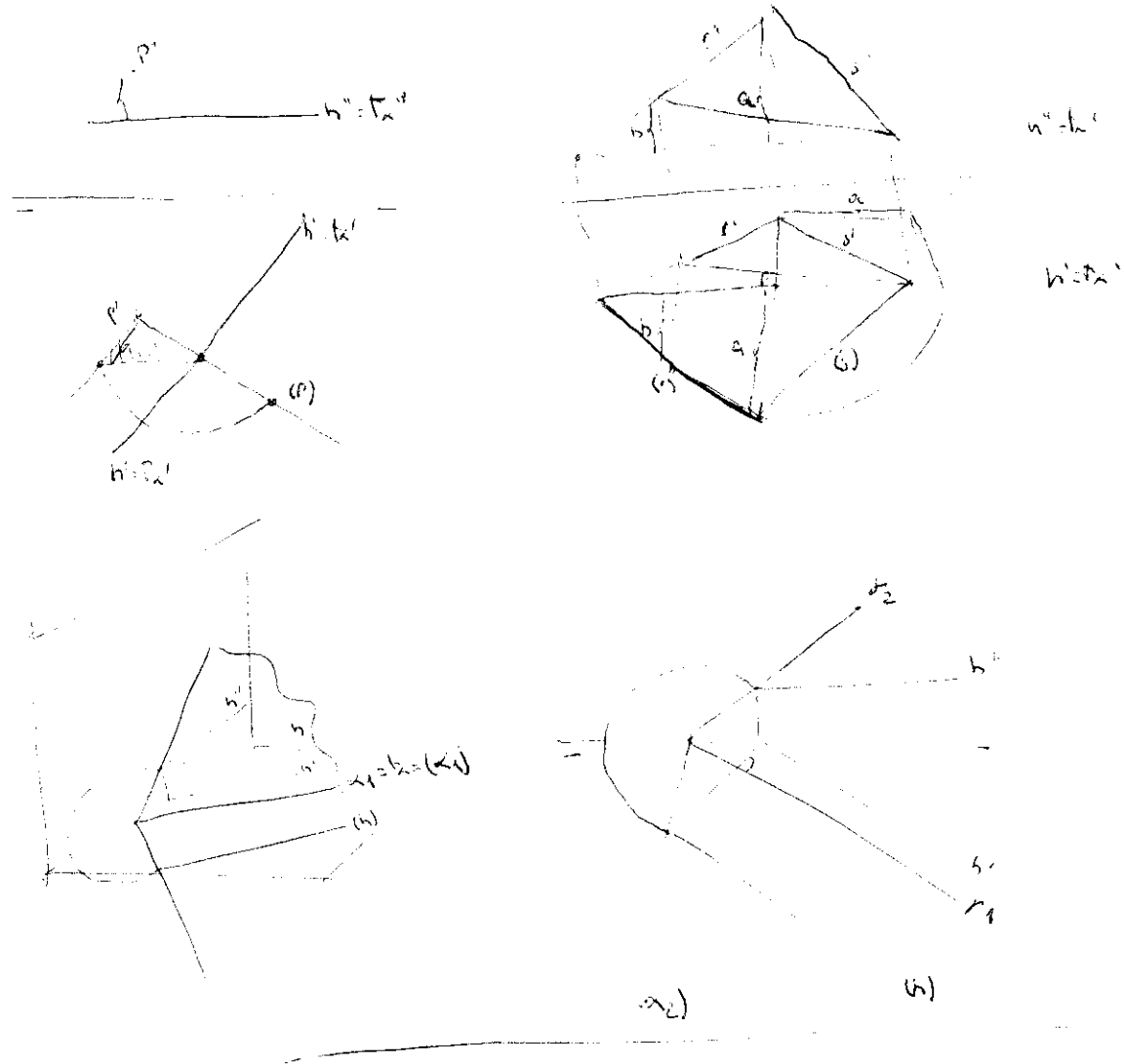


## ERASPRENAK



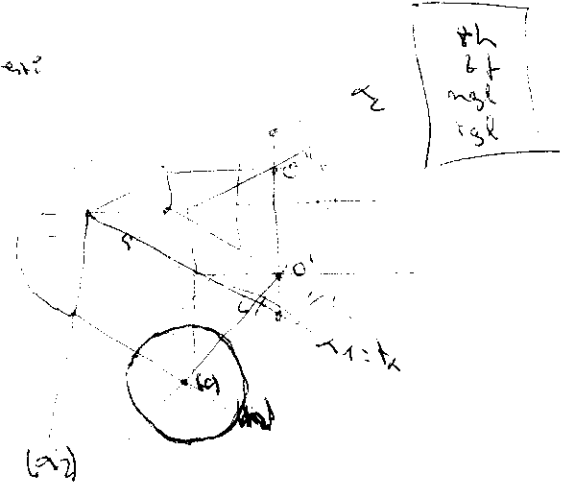
Trunket  
 (birgin)





Arbeits

- $\alpha \begin{cases} (45, 0, 0) \\ (0, 50, 50) \end{cases}$  planen rechte projektive Darstellung ablesen (benutzt 3 Punkte)
- $\beta \begin{cases} (0, 4, 15) \end{cases}$  planen drehen-punkte
- $\gamma: 20$  kugeln in rechte



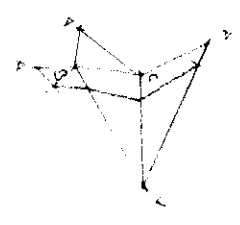


12.6.15.009

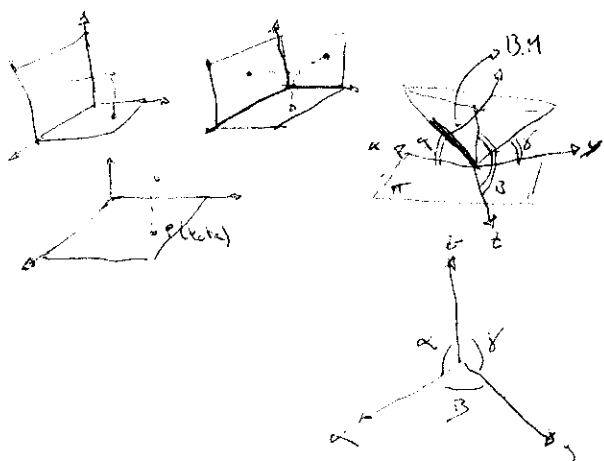
Gemischter (erweiterter)

- $V(-10, 0, 11)$
- $A(0, 11, 0)$
- $B(-4, 13, 0)$
- $C(-8, 5, 0)$

$\propto \begin{cases} (-8, 0, 0) \\ (-4, 15, 8) \end{cases}$



## SISTEMA AKROMETRIZVOA

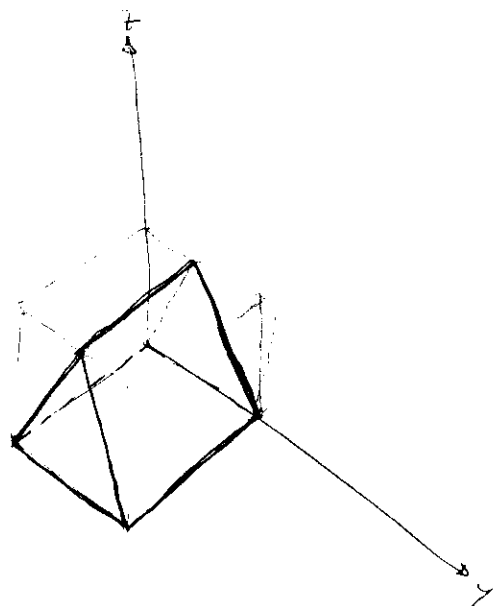
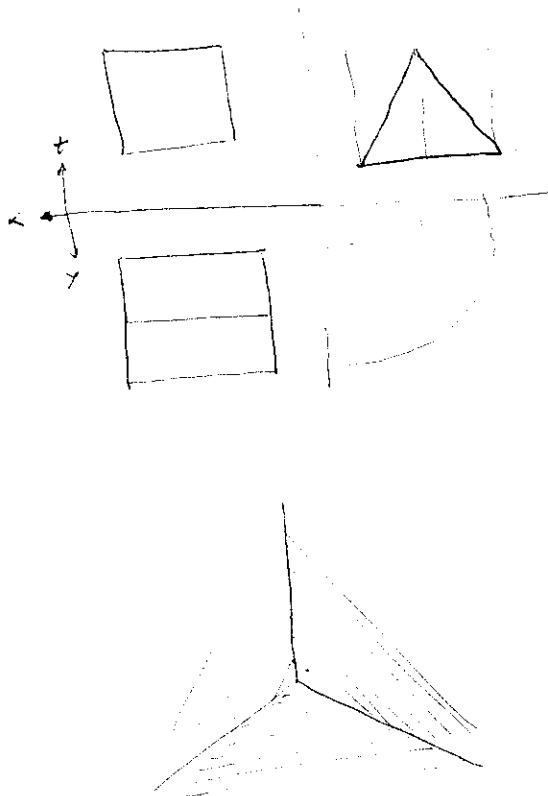


Trikotne koeficienta erabilt behar dugu  
beharke mugatutako sistema adierazteko.

$$\cos \alpha = \frac{\text{Projecktor}}{BM} \quad \text{proj.ekt} = \cos \alpha \cdot BM$$

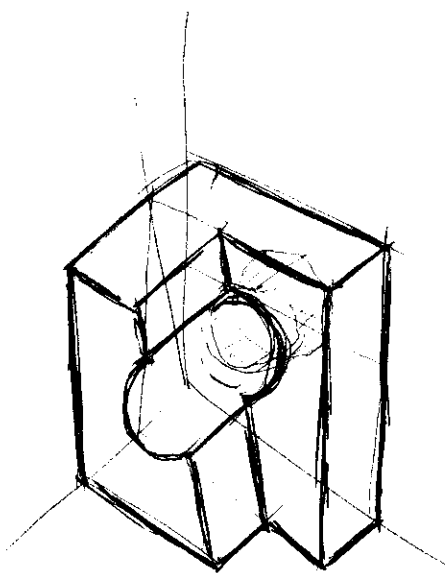
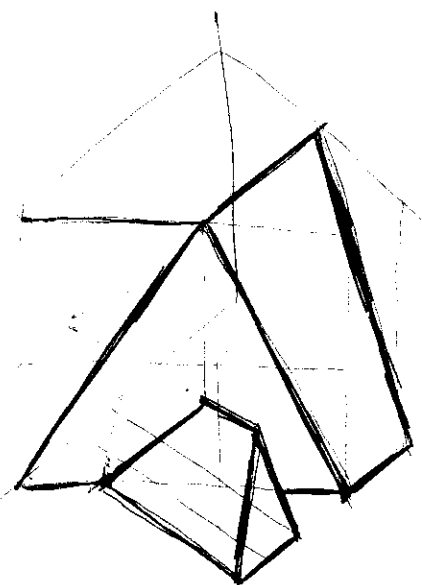
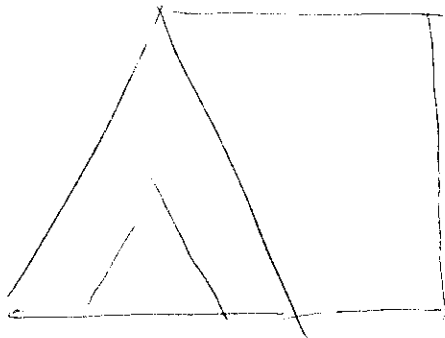
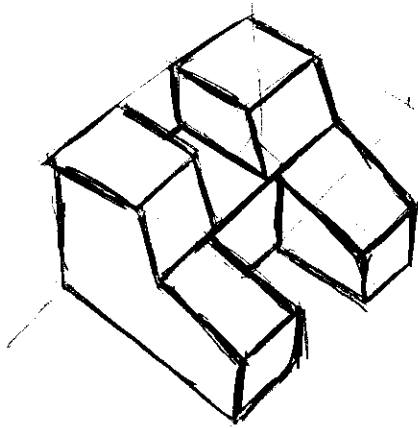
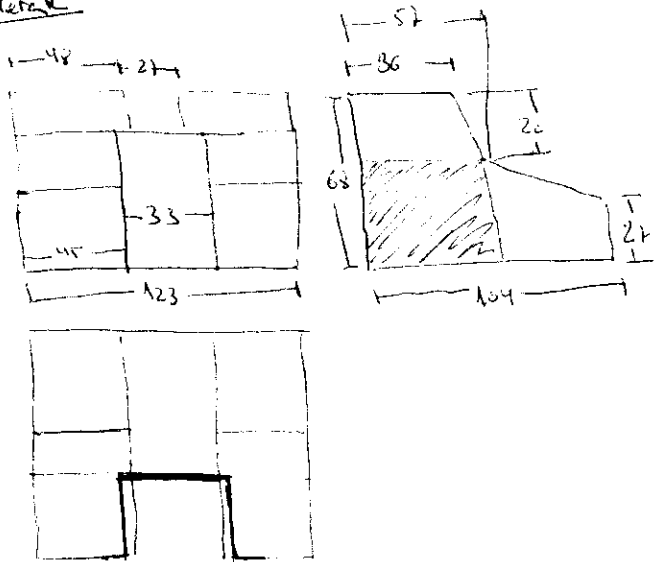
- $\alpha \neq \beta \neq \gamma \Rightarrow$  sistema anisotriko trimetrikoa
- $\alpha = \gamma \neq \beta \Rightarrow$  sistema anisotriko dimetrikoa
- $\alpha = \beta = \gamma \Rightarrow$  sistema anisotriko isometrikoa

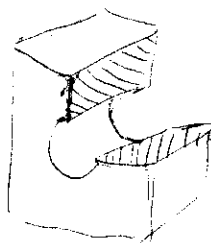
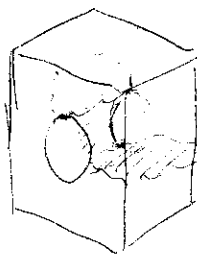
Guk, normalean, isometrikoa erabiltzen dugu. Hiru angeluak  
120°-ko angelu dituzte, behar bezala beharrezko trikote-  
koefizienteak 0,816 dira. Hala ere, 1 erabiltzen dugu,  
beste bat eskatzen erabiltzen.



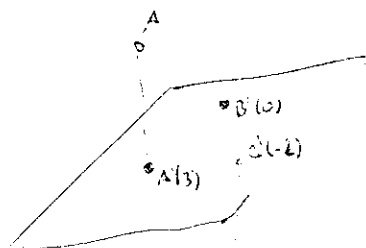
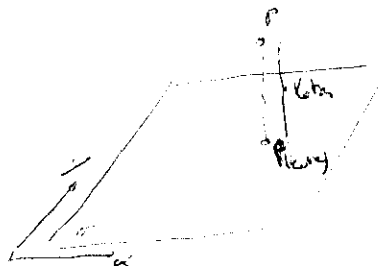
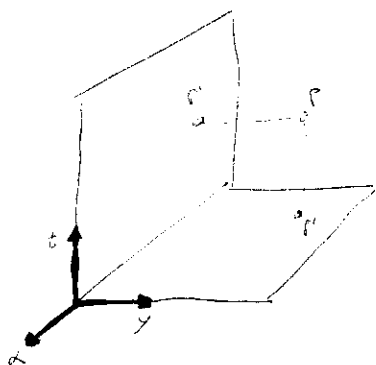
7 Merkaturaren erabilketan erabiltzen diren gailuak  
gailuak erabiltzen diren dimentsioak erabiltzen  
dugu.

A. K. K.

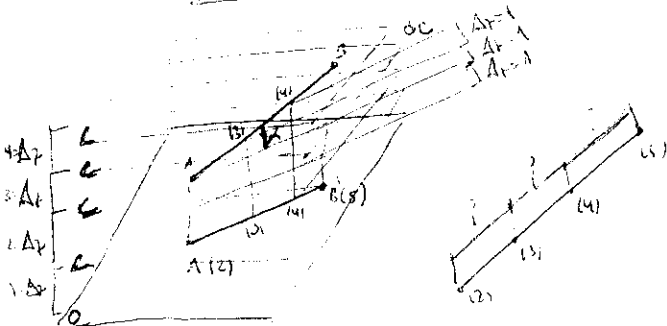




PLANO ACOTATURAL



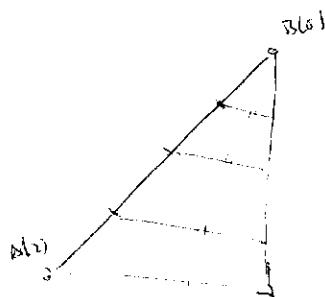
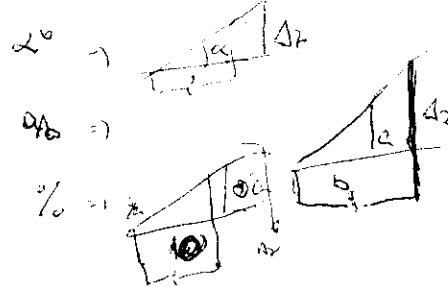
! Notation: O katedin planu arebiten dugu, barmesherin arebiti duralugu, horizontalen der bitesten.



Bitesten = i p' d'ekken neartu -> a' d'ekken horizontalen  
Eliditentiya / distentse: d'ekken =>  $\Delta t$  => a' d'ekken horizontalen  
 $\alpha$  => planu horizontalen d'ekken

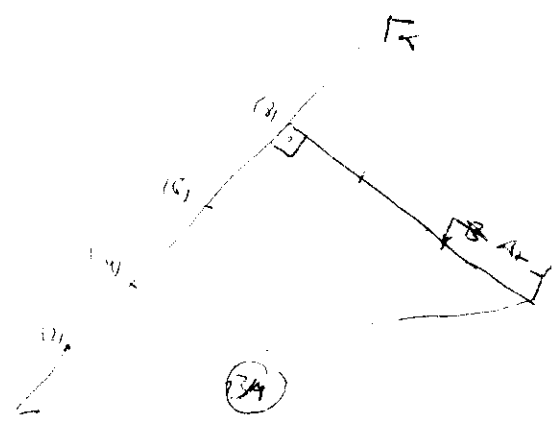
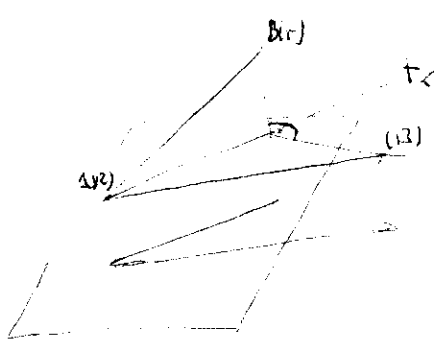
Malika =>  $t_{\text{g}} = \frac{\text{Eliditentiya}}{\text{bitesten}} \Rightarrow \text{bitesten} = \frac{\Delta t}{n}$

Malika

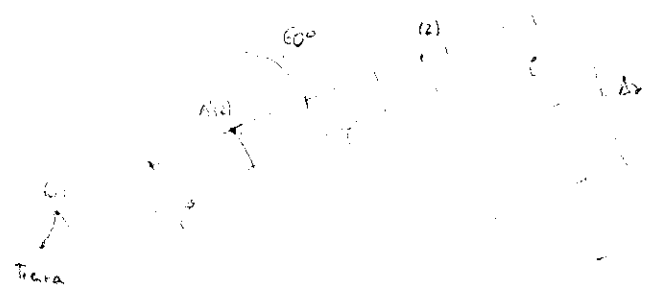


[~~Malika~~]

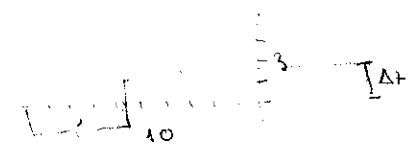
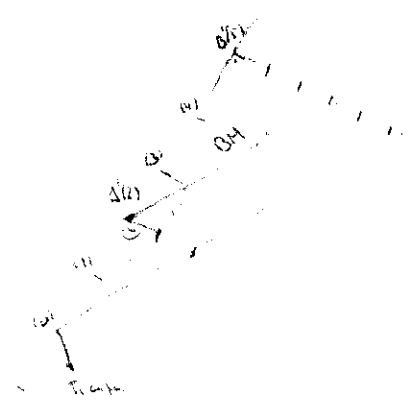
36-5-13

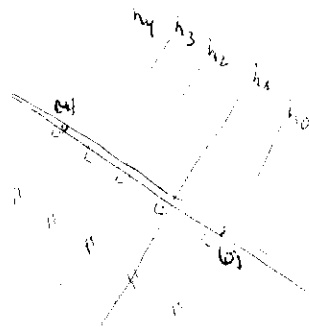


$\Delta(5,5,2)$   
 $m \approx 3/4$   
 $\Delta_1 <$   
 $\angle 60^\circ$



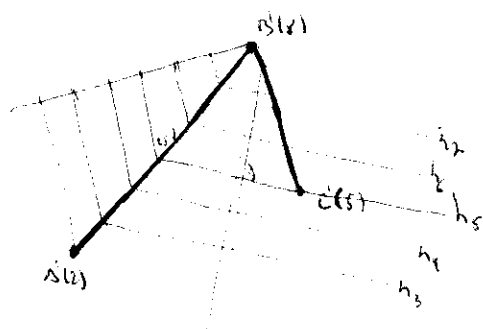
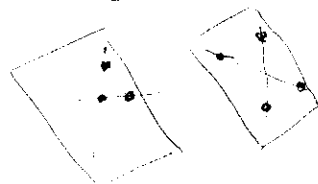
$\Delta(5,5,2)$   
 $\Delta(x,y,5)$   
 $m \approx 3/10$   
 $\Delta_1 = 1$   
 $\angle = 30^\circ$





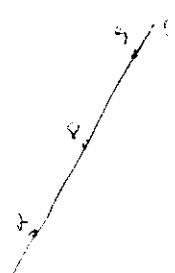
- ▶ mg l.k. katan isolasi & berak.  
 PP: ekstre paralel & berangin.
- ▶ mg l.k. katan but berangin yang  
 berak, PP: ekstre katan  
 berangin.
- ▶ mg l.k. katan but berak &  
 berak, PP: ekstre ekstre  
 berangin.

- ! Plano bet 2, 10 meter en biter  
eider leeren kluiter zonder  
hooptuinen biter deftich  
denakige. Aker freuken  
beavdege



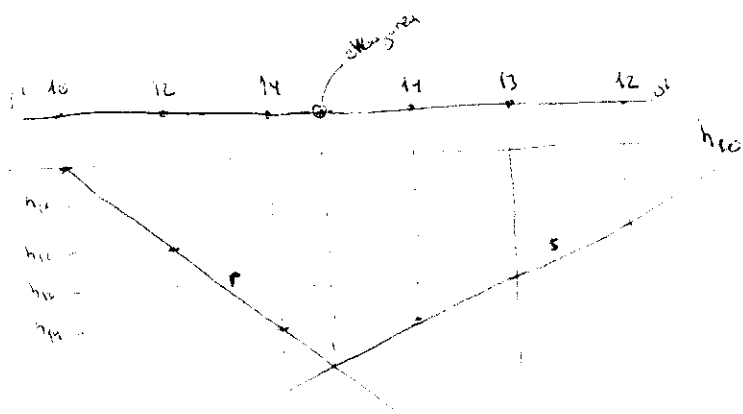
Behandlung: ein Elektrolyse  
über ein paar Tage über beste  
Kasse gestellt

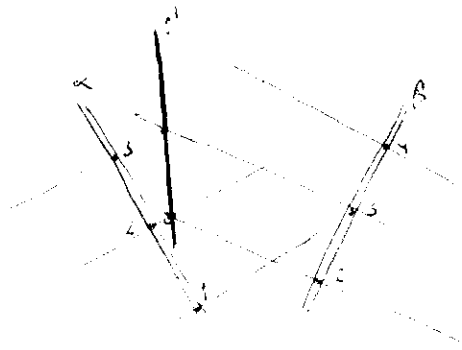
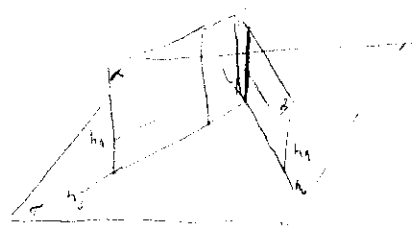
Zusammen mit den anderen



leters //  
 prolektroak //  
 i<sub>x</sub> = i<sub>y</sub>

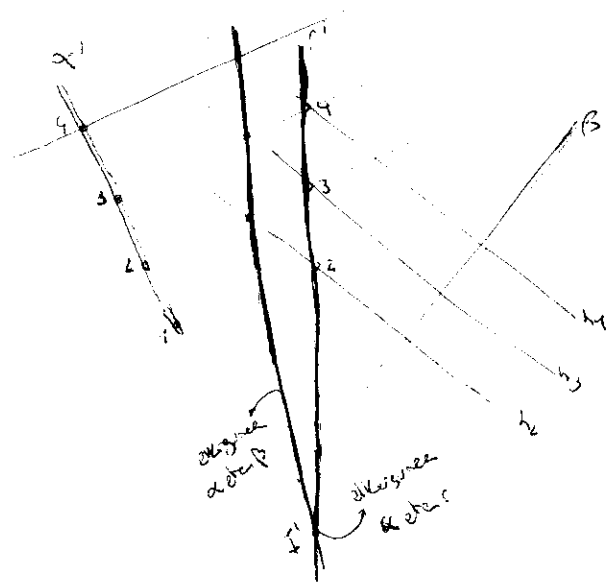
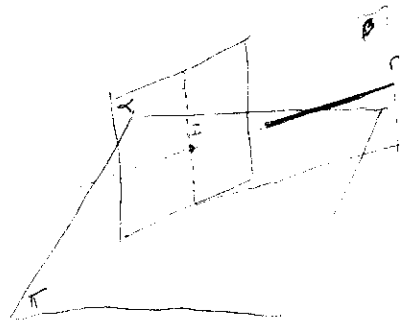
\* Beiden nahe verwandt



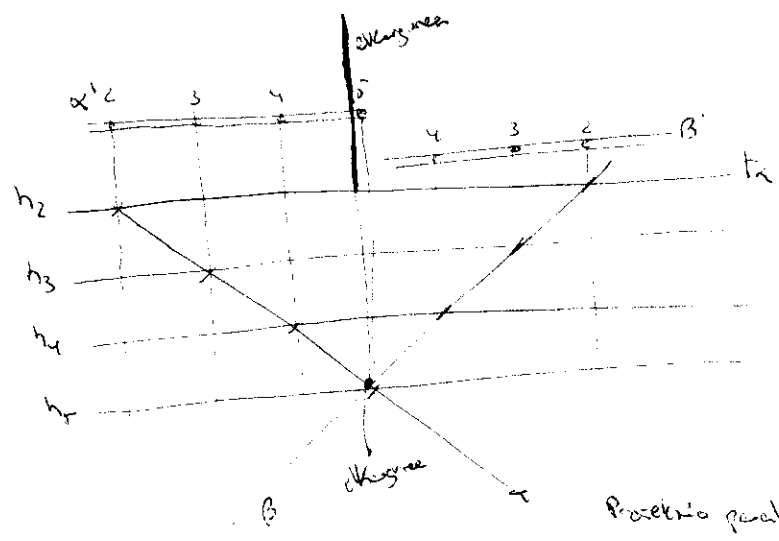


! Mähtik ete bi punktunin egin  
võttek, konvergentsia ead hru  
pinto aritmet, hruvle rorota  
egm bene dora.

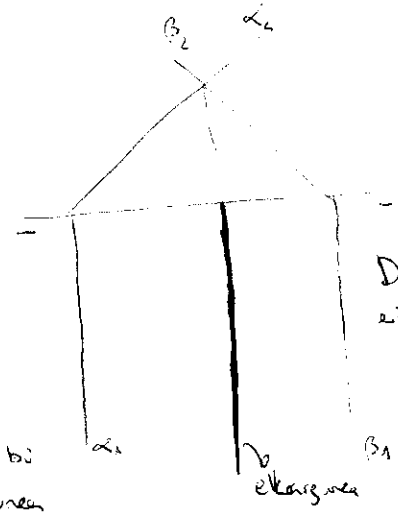
Plane ete ettekkerguena



Plane ete ettekkerguena



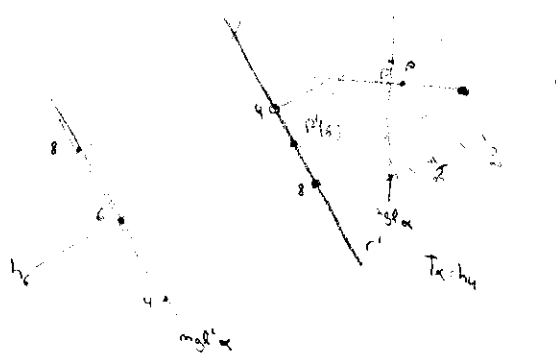
Prosektio paralelelun bi  
planen a Feko ettekkerguena



Diedrilein  
ettekkerguena

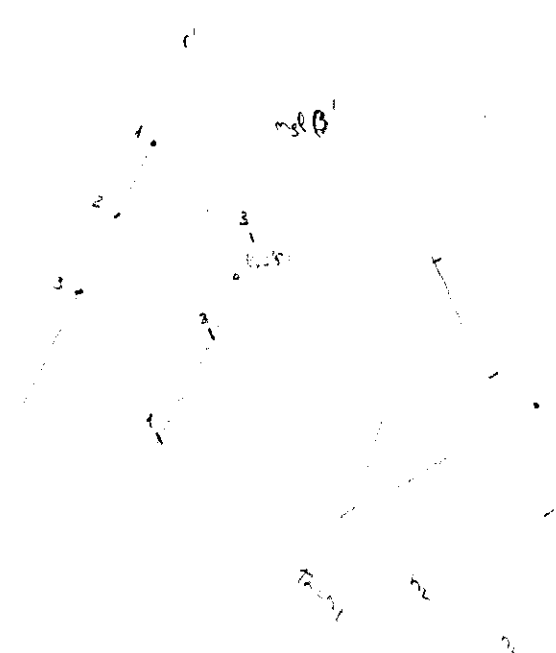
! W: plannen ~~et~~ ngl punktack bilden  
bistne, er projektionit seikk, plann hruvle  
paralelelun vengedora.

ngl  $\alpha'$  ete ngl  $\beta'$  //  
projektionit //  
in  $\alpha'$   $\beta'$   
\* Bardin neuletetud



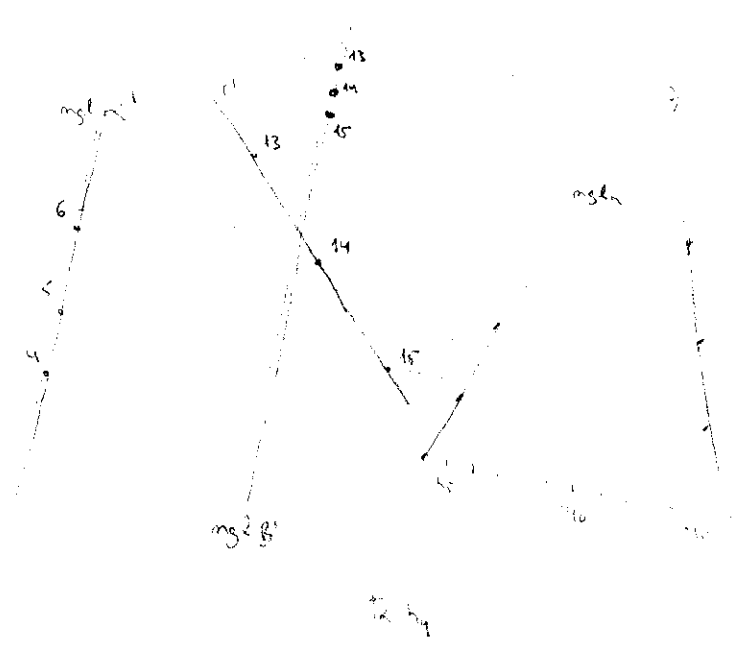
Aurkilo P puntutik igaratu den  $\alpha$  planarekiko luter elkartuta

$$r \perp \alpha$$
$$P \in r$$



Aurkilo P puntutik igaratu den  $\beta$  planarekiko luter elkartuta

$$\beta \perp r$$
$$P \in \beta$$



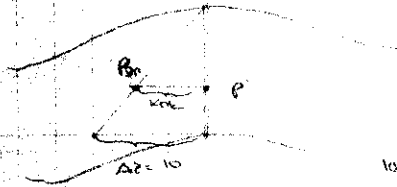
Aurkilo  $\alpha$  planarekiko elkartuta den eta berean  $r$  luter den plano

$$\beta \perp \alpha$$
$$r \in \beta$$

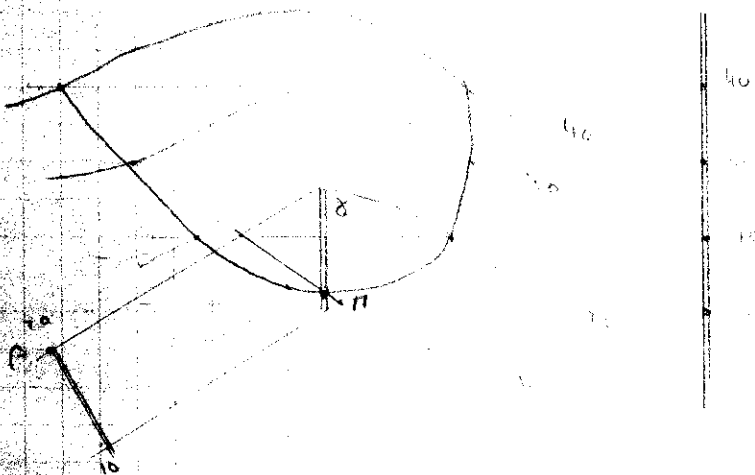


# Plano Topo GRAFIKOA

Puntu baten koto

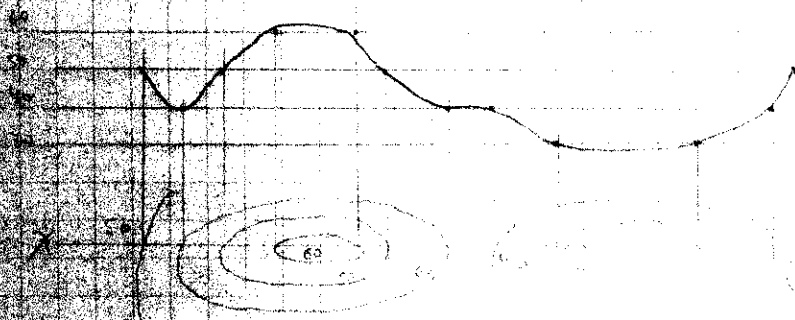


Plano batekiko eba kidura



Plano batekiko. a, p eta x planoen arteko ebaki: puntua

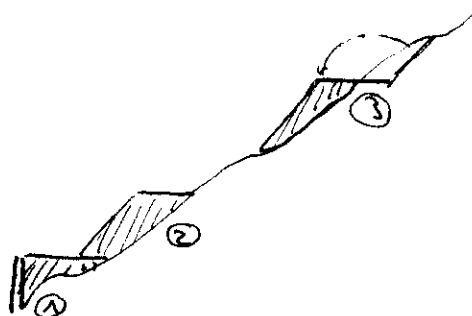
Profila:



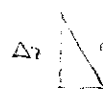
$$L_{\text{a}} = L_{\text{m}} \cdot 2$$

- Mendoitzak:

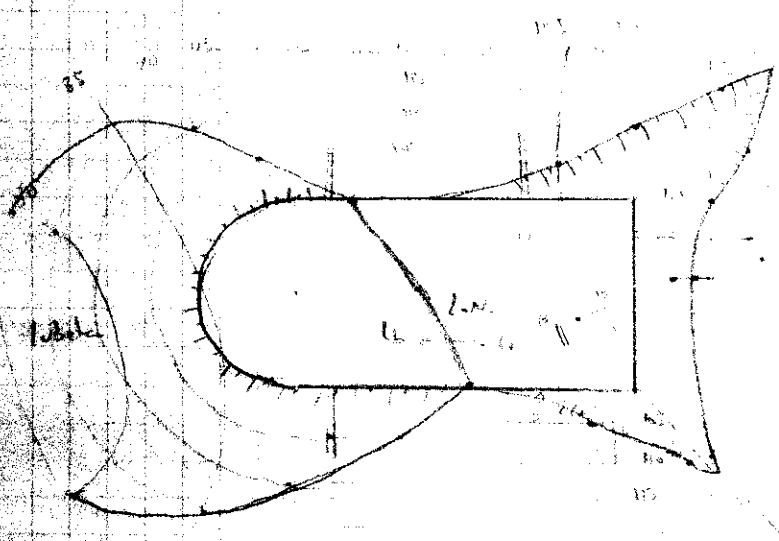
Material bakoitzaren esangaria da mendoitzea angelua



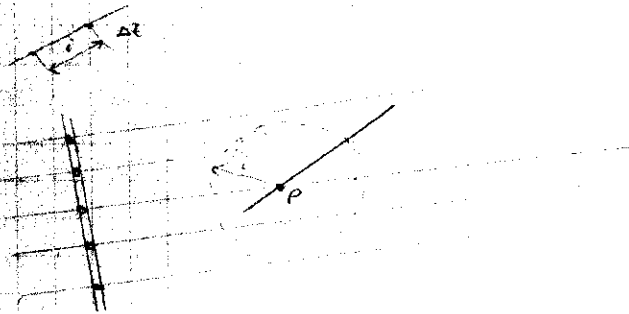
- Laukelak:



- Laua berrantzen



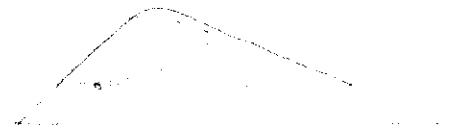
## BOZETIDORRAK



ZURENA MAX

↓  
bitartea

Bide bat,  $l_2$  eta  $l_6$ -rik gabe, eta  
malda aldaezina

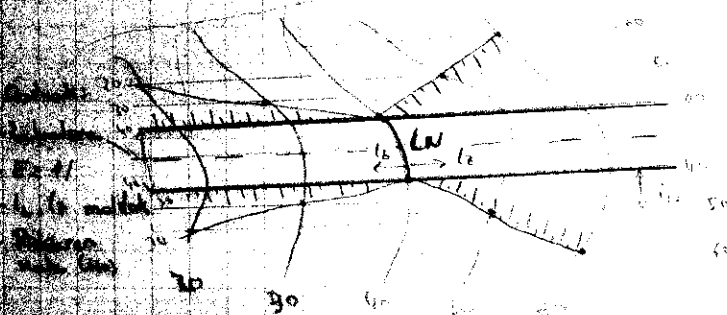
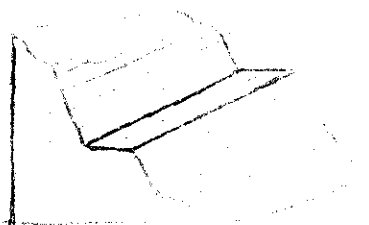


malda aldaezina

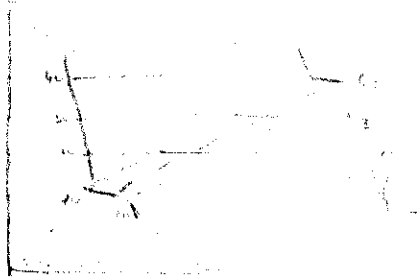
malda aldaezina

## BIDEAK

Horizontalak



- Zeichnen:



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